

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-30 (Canceled)

Claim 31 (New) A method for inducing immune responses to HPV16 in a human subject which comprises administering to the subject between 1 ng and 100 mg of a composition comprising a synthetic polynucleotide, the synthetic polynucleotide comprising a sequence encoding a codon-optimized human papillomavirus serotype 16 (HPV16) protein, wherein said polynucleotide sequence comprises codons that are optimized for high-level expression in a human host.

Claim 32 (New) A method for inducing immune responses to HPV16 in a human subject which comprises administering to the subject between  $10^{11}$ - $10^{12}$  particles of an adenoviral vector carrying a synthetic polynucleotide, the synthetic polynucleotide comprising a sequence encoding a codon-optimized human papillomavirus serotype 16 (HPV16) protein, wherein said polynucleotide sequence comprises codons that are optimized for high-level expression in a human host.

Claim 33 (New) A method for inducing an immune response against human papillomavirus type 16 (HPV16) in a human subject, comprising

- a) administering to the subject a first vector comprising a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell;
- b) allowing a predetermined amount of time to pass; and
- c) administering to said subject a second vector comprising adenoviral vaccine vector comprising an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprises

- i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and
- ii) a promoter operably linked to the polynucleotide.

Claim 34. (New) A method for inducing immune responses to HPV16 in a human subject comprising

- a) administering to the subject a plasmid vaccine, wherein the plasmid vaccine comprises a plasmid portion and an expression cassette portion, the expression cassette portion comprising:

- i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and
  - ii) a promoter operably linked to the polynucleotide;

- b) allowing a predetermined amount of time to pass; and

- c) administering to said subject an adenoviral vaccine vector comprising an adenoviral genome with a deletion in the E1 region, and an insert in the E1 region, wherein the insert comprises an expression cassette comprising:

- i) a polynucleotide encoding a codon-optimized HPV16 protein selected from the group consisting of L1, E1, E2, and E7 proteins, wherein said polynucleotide is codon-optimized for expression in a human host cell; and
    - ii) a promoter operably linked to the polynucleotide.